

YOGA - CHAIR BREATHING FOR ACUTE EPISODES OF BRONCHIAL ASTHMA

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(Received original February 1991; revised October 1991)

ABSTRACT

One hundred and ten episodes of airway obstruction in 86 bronchial asthmatics were treated by a special eight stepped yoga chair breathing procedure consisting of very simple neck muscle relaxation movements and asanas with breathing exercises. Seventy percent of the episodes have been successfully relieved within a mean time of 30mts. The patients gained great confidence and tried this technique before resorting to drugs. The reduction in panic anxiety elements, cutting the vicious circle of aggravating bronchial obstruction appear to work in relieving the acute episodes.

Introduction

The possibility of reversing the smooth muscle spasm without resorting to drugs in acute episodes of bronchial asthma has always interested several investigators. Clinical experience has often suggested that sitting quietly and/or relaxation during an acute attack is helpful and even a minor physical exertion worsens the distress. Alexander and team have shown significant increase in peak expiratory flow rate (PFR) after modified Jacobson's systematic relaxation training in asthmatics (1). Philip and colleagues have also reported effects of suggestion and relaxation in asthmatics (2). Goyeche reports that the patients during yoga therapy, learn to control the attacks (3). Shankardevaananda Saraswathi reports the use of Vaman Dhouti or Kunjal (a yogic stomach wash technique) in such episodes of asthma (4). However no systematic research study on application of yoga clinical practice has been done to our knowledge.

During and after yoga training sessions for patients of bronchial asthma, we have received similar reports of benefits. Based on such observations, a special yoga technique called yoga-chair breathing has been developed by us. The present study reports the results of a scientific study about the use of this special yogic technique during attacks in patients who were undergoing yoga training for bronchial asthma.

Material and Methods

The details of 86 patients with established bronchial asthma satisfying the clinical criteria of

Crofton, Douglas and Shivpuri (5, 6) are presented in Table-1.

TABLE - 1

Age and other physical features in Asthma patients selected for study (n=86)

No. of Episodes	: 110	
Seasonal episodes	: 28	
Perennial episodes	: 24	
Mixed pattern	: 34	
Physical features	Average	Range
Age (Years)	36.8	8-64
Duration of Asthma (Yrs)	15.6	0.5-38
Weekly number of attacks	4.9	0-14
Weekly drug treatment score	10.5	
Peak Flow rate (l/min)	314.8	90-640

The group chosen had an average of 4.9 attacks per week. An attack was defined as an episode of wheezing and dyspnoea which stopped the patient from continuing his relaxation practices and would have normally required an inhaler or tablet according to the patient's earlier experience. None of these patients could get their episodes relieved without resorting to drugs. Before taking up yoga therapy, 30% of the patients used steroids to overcome their episodes of airway obstruction. These patients were undergoing an integrated approach of yoga training in seven of our camps (of two weeks duration) spread over three years covering various seasons. (7-9) During the training programme, the patients were taught the yoga chair breathing procedure with the following eight steps :

1. Relaxation using chair as an arm support
 - a) Sit on the carpet with legs stretched. Pull the chair towards the chest with head and arms collapsed on the seat of the chair.
 - b) Tense the entire body from toes to head and relax.
 - c) Regional relaxation from toes to head.
2. Neck muscle relaxation with chair support. (Fig.)
 - a) Move the neck backwards and forwards slowly to relax the posterior neck muscles - five times.
 - b) Inhale as deeply and as slowly as possible while bending the neck backwards, exhale while moving forwards - five times.
 - c) Chant 'AA' in a low tone while bending the neck forwards - five times.

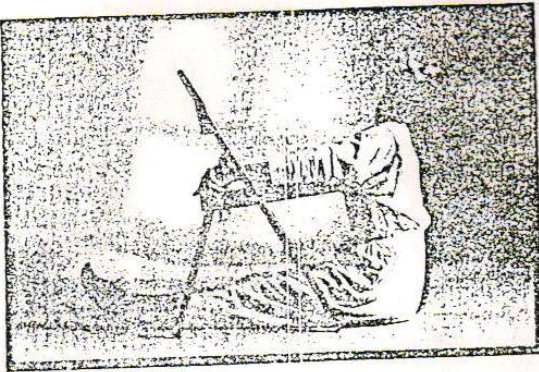


Fig. Chair breathing. Demonstration of neck movements

3. Neck movements in Vajrasana
 - a) Move the neck forwards and backwards as before (2a), remove the chair and sit in Vajrasana - five times.
 - b) Inhale while going back, exhale while bending forward - five times
 - c) Chant 'AAA' while bending the neck forward - five times.
4. Sasankasan
 - a) Bend backward and forward from the waist while sitting in vajrasana - five times.

- b) Synchronise the breathing with this movement - five times.
- c) Chant 'MMM' (Bhramari Pranayama) while bending forward - five times.
5. Tadasana (about one minute) : Relax from toes to head while standing in tadasana.
6. Neck movements in Tadasana
 - a) Forward and backward - five times
 - b) With breathing - five times
 - c) With breathing and Bhramari - five times
7. Ardha Chakrasana - Pada Hastasana
 - a) Bend forward from Tadasana to Padahastana slowly and raise upto Tadasana and bend backwards to Arda Chakrasana return to Tadasana - five times
 - b) Tadasana - Pada Hastasana - Tadasana - Ardha Chakrasana- Tadasana series with breathing- five times
 - c) Movement, breathing and Bhramari- five times
8. Savasana
 - a) Feel the natural abdominal movements building up
 - b) With breathing- five times
 - c) Movement, breathing and 'AA' sound

The whole procedure normally takes 25 minutes to 60 minutes. These patients developed a wheeze when they were learning the relaxing yoga practices. Right then, they were asked to come out of the regular yoga training, pull a nearby chair, sit on the ground and start the eight step yoga-chair-breathing procedure. The PFR reading was taken using a mini Wright's PFR Meter before and after the procedure. The total time taken in seconds for the complete procedure was noted using a stop watch. The subjective feeling of well being and the presence of wheezing before and after were recorded in remarks column.

Those who did not improve at the end of second round of this relaxation procedure were advised to take their usual bronchodilator drug to get back to normalcy. Sometimes, the patients were in a hurry to go home and did not have enough time to complete their procedure. During the first few episodes, the patients were given suggestions to follow the procedure in the specified way. This

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helped them to overcome their panic and anxiety moments. The doctor incharge kept watch during the episode and administered drugs when found necessary. Later, the patients followed the procedure by themselves. The data presented relate to these latter events. They were also asked to resort to yoga chair breathing even at home and keep a diary of attacks and report their experiences. While large number of such cases on each patient was available, no more than three episodes per patient have been included in this presentation. The patients used this yoga-chair-breathing procedure whenever they felt the onset of an attack during their post-training rehabilitation phase.

Results

Those patients who had symptomatic relief with no wheezing on auscultation with increasing no change in PFR were classified under improved category (I) 78 episodes. Those who felt partially improved symptomatically but had their PFR reduced or those in whom wheezing reduced were called partially improved (P1) group (21 episodes). No change (NC) group consisted of 10 episodes.

The results of the students' paired 't' test for PFR change are shown in Table 2 for all the groups.

TABLE - 2

PFR changes and Average time taken for completing yoga-chair-breathing

Group	No. of episodes	Average time (mins)	PFR : Mean \pm SD		Mean Diff.	't' value
			Initial	Final		
I	78	29.8	112.6(54.4)	138.2(82.7)	25.6	5.93 ***
PI	21	35.6	92.5(32.3)	85.6(26.9)	-6.9	2.58 *
NC	10	41.0	96.0(42.9)	84.0(45.4)	-12.0	2.42 *
D	1	38.0	68.0	60.0	-	-

I-Improved, PI-Partially Improved, NC- No Change, D- Deteriorated, *** $p < 0.001$, * $p < 0.05$

There is a statistically significant improvement in PFR in the group as a whole and in improved groups, there is no significant change in PFR in the other categories. The average time taken is least for the I group and maximum for the NC group.

The low values of the correlation coefficient 'r' in Table 3 shows that there is no correlation between the initial PFR values and the time taken for yoga-chair-breathing in any of the groups.

TABLE - 3

Correlation coefficient between Initial PFR before attack and time in minutes

Group	No. of Episodes	Initial PFR (1/min)	Time taken (min)	Correlation Coefficient (r)
I	78	112.6	29.8	0.03 (NS)
PI	21	92.5	35.4	-0.12 (NS)
NC	10	96.0	41.0	-0.41 (NS)
D	1	68.0	38.0	-
Pooled	110	106.8	32.1	-0.08 (NS)

NS- Not Significant

The Table 4 depicts the results of the analysis of variance (anova) between the groups I, P1 and NC and their initial PFRs.

TABLE - 4

'F' values showing that the differences in Initial PFRs in different groups are Insignificant.

Source	Degree of Freedom	Sum of Squares (SS)	Mean SS	F
Between Groups	2	8065	4032.5	1.575*
Within Groups	106	271447	2560.8	

* - Not significant

The low 'F' value shows that the differences are not significant. Hence the improvement or otherwise after yoga-chair-breathing does not depend on initial PFR as observed in this study of acute episodes.

Discussion

McFadden and team have studied the relation between the clinical and physiological manifestations in acute asthma (10). They found that even when patients were asymptomatic after an attack, their lung functions were only 40-50% of their predicted normal and when they were without signs (i.e., audible rhonchi in the chest) their mechanical lung functions were 60-70% of their predicted normal. Hence they warn that although the patients are asymptomatic after an attack this may form a base for further attacks. In our series too (I group) we have observed that although there was a significant increase in PFR, it was much below their predicted normal values. However, we noticed an overall significant reduction in mean attacks per week and medication scores during the 15 days of practice as well as in the long term follow-up in these patients (8). Hence, these results point to the fact that yoga-chair-breathing is effective as well as risk-free and could be used in all cases during attacks.

Philip has reported the differential effects of suggestion and relaxation on asthmatics in a controlled study (2). Relaxation training improved respiratory efficiency on short term basis and also the patients tolerance to Mecholyl. The authors points out that anxiety may influence by increasing the autonomic arousal which may provoke, aggravate, or prolong the attack induced by external agents. Relaxation training helps to break the vicious cycle of anxiety and bronchospasm by deconditioning and lowering the general level of arousal of autonomic nervous system.

Yoga-chair-breathing that helps to divert the mind and move the individual into a relaxed serene mood works similarly by warding off this pathic element. Self-confidence is built up by observing the co-participants getting over their attacks (group therapy effect). The understanding of the theory of yoga helps to develop an internal awareness thus leading to a perception of the respiratory passages. The slowing down of the entire system leads to stabilisation of the nervous system, thus reducing the hyperactivity in both the afferent and efferent neurological pathways involved in the

the minimum dose of the bronchodilator drugs and prevent the progression to status asthmaticus (acute severe asthma).

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